

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference B03/0778PC	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/EP2005/001248	International filing date ( <i>day/month/year</i> ) 08 February 2005 (08.02.2005)	Priority date ( <i>day/month/year</i> ) 12 February 2004 (12.02.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant BASF AKTIENGESELLSCHAFT			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input checked="" type="checkbox"/> | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	Date of issuance of this report 04 October 2006 (04.10.2006)  Authorized officer  <p style="text-align: center; font-weight: bold;">Agnes Wittmann-Regis</p> e-mail: pt06@wipo.int
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# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year) **See form PCT/ISA/210**

Applicant's or agent's file reference

**B03/0778PC**

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

**PCT/EP2005/001248**

International filing date (day/month/year)

**08.02.2005**

Priority date (day/month/year)

**12.02.2004**

International Patent Classification (IPC) or both national classification and IPC

**C08G69/16, C08G69/04**

Applicant

**BASF AKTIENGESELLSCHAFT**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

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Box No. I	Basis of this opinion
1.	<p>With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).</p>
2.	<p>With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> in written format</p> <p><input type="checkbox"/> in computer readable form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed.</p> <p><input type="checkbox"/> filed together with the international application in computer readable form.</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search.</p>
3.	<p><input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p>
4.	<p>Additional comments:</p>

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-10	YES
	Claims	NO
Inventive step (IS)	Claims 1-10	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-10	YES
	Claims	NO

2. Citations and explanations:

Reference is made to the following documents:

D1: WO 00/24808 A (E.I. DU PONT DE NEMOURS AND COMPANY) 4 May 2000  
(2000-05-04)

D2: WO 99/38907 A (BASF AKTIENGESELLSCHAFT; MOHRSCHLADT, RALF)  
5 August 1999 (1999-08-05)

D1 is considered the closest prior art to the subject matter of claim 1. It discloses a continuous method for producing polyamides by reacting aminonitriles with water in a vertical reactor, the aminonitrile being fed in at the top end of the reactor and passing through this vertically and steam being fed in at the bottom end (claim 1). Water can also be fed in jointly with the aminonitrile at the top end, since the aminonitrile can be added as aqueous solution (page 6, lines 19-22). It is also possible to feed in a fraction of polyamide prepolymer together with the aminonitrile which can be obtained from liquid extraction of the end product. D1, however, also mentions that as a result the productive capacity of the reactor is decreased (page 8, line 24 to page 9, line 2). Water can be added at various points of the reactor for the purpose of temperature control (page 10, lines 27-29; cf. also figure 1).

The subject matter of claim 1 differs from D1 in that, at at least one point of the reactor, an aqueous medium of aqueous monomer and oligomer extracts which arise in the production of polyamides during extraction of the polymer with water is introduced.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

The applicant, in comparative examples, shows that by means of the inventive method, polyamides having a higher carboxyl end group content can be obtained.

The problem addressed by the present invention can therefore be considered that of providing a continuous method for producing a polyamide by reacting an aminonitrile with an aqueous medium which is a monomer extract or oligomer extract which is obtained when extracting the polymer with water during the production of polyamides (claims 1 and 8). For the reaction, a flow tube comes into consideration through which flow passes from top to bottom (page 8, line 22 to page 9, line 5). D2 does not mention any advantageous effects of the method reported there on the carboxyl end group contents. A comparison of the examples present in D2 indicates rather that the ratio of carboxyl end groups to amino end groups becomes smaller by use of the extract, compared with use of water. Therefore, a person skilled in the art, in order to solve the inventive problem, is not urged by D2 to modify the method described in D1 in such a manner that, instead of water, an extract is used which is obtained when extracting the polymer with water during the production of polyamides.

Therefore, the subject matter of claim 1 involves an inventive step (PCT Article 33(3)).

Claims 2-10 are dependent on claim 1 and thus likewise meet the PCT requirements for novelty and inventive step.

WRITTEN OPINION OF THE  
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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Pursuant to PCT Rule 11.13(1), reference signs not mentioned in the description must not appear in the drawings and vice versa. This requirement is not met, since the application does not contain drawings. The reference signs on page 6-10 should therefore be removed.